Report #:DOE/EIA-0581(2003)
Release date: March 2003

The National Energy Modeling System: An Overview 2003

Characteristics of Selected Equipment

Equipment Type	Relative Performance[1]	2001 Installed Cost (2001 dollars)[2]	Efficiency[3]	2015 Installed Cost (2001 dollars)[2]	Efficiency[3]	Approximate Hurdle[4] Rate
Electric Heat Pump	Minimum	$2,930	10.0	$3,500	12.0	15%
	Best	$5,600	18.0	$5,600	18.0	
Natural Gas Furnace	Minimum	$1,300	0.80	$1,300	0.80	15%
	Best	$2,700	0.97	$1,950	0.97	
Room Air Conditioner	Minimum	$540	8.7	$540	9.7	140%
	Best	$760	11.7	$760	12.0	
Central Air Conditioner	Minimum	$2,080	10.0	$2,300	12.0	25%
	Best	$3,500	18.0	$3,500	18.0	
Refrigerator (18 cubic ft)	Minimum	$600	690	$600	478	19%
	Best	$950	515	$950	400	
Electric Water Heater	Minimum	$337	0.86	$500	0.90	83%
	Best	$1,200	2.60	$1,100	2.6	
Solar Water Heater	N/A	$3,200	2.0	$2,533	2.0	83%

[1]Minimum performance refers to the lowest efficiency equipment available. Best refers to the highest efficiency equipment available.
[2]Installed costs represents the capital cost of the equipment plus the cost to install it, excluding any finance costs.
[3]Efficiency measurements vary by equipment type. Electric heat pumps and central air conditioners are rated for cooling performance using the Seasonal Energy Efficiency Ratio (SEER); natural gas furnaces are based on Annual Fuel Utilization Efficiency; room air conditioners are based on Energy Efficiency Ratio (EER); refrigerators are based on kilowatt-hours per year; and water heaters are based on Energy Factor (delivered Btu divided by input Btu).
[4]The hurdle rate represents the consumer's "willingness" to invest in energy efficiency is by weighing the first cost and operating cost of competing technologies. The higher the hurdle rate, the less likely a consumer will invest in energy efficiency. These rates include all financial and non–financial factors (such as size, color) that influence a consumer's purchase decision.

Source: Arthur D. Little, *EIA Technology Forecast Updates*, Reference Number 8675309, October 2001.